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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,130	03/12/2004	Yoshihiro Kobayashi	9319S-000733	6935

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EXAMINER

CHAPMAN JR, JOHN E

ART UNIT PAPER NUMBER

2856

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,130

Applicant(s)

KOBAYASHI, YOSHIHIRO

Examiner

John E. Chapman

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/16/04; 8/2/04.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The information disclosure statement filed August 2, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the piezoelectric vibrating reed having a sensitive membrane on an exciting electrode (claims 3 and 4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

Art Unit: 2856

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. Claim 1 is objected to because of the following informalities: In claim 1, line 4, "phases lock loop" should be changed to either --phase lock loop-- or --phase locked loop--. Appropriate correction is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear whether claim 2 recites a combination (measurement signal output circuit + a piezoelectric vibrating reed) or only a subcombination (measurement signal output circuit). Insofar as claim 2 positively recites only the subcombination (measurement signal output circuit), then it is not clear that claim 3 provides any further limitation to claim 2, since it would modify an unclaimed element. Likewise for claim 4.

Claim 3 is indefinite in that it recites both an apparatus and a method step of using the apparatus. See MPEP 2173.05(p)(II) and *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990).

Claim 4 is indefinite in that it recites both an apparatus and a method step of using the apparatus.

Art Unit: 2856

It is not clear what limitation, if any, claims 5-7 provide.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-7, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Duncan.

Duncan discloses a method and apparatus for measuring mass from a change in oscillation frequency of a piezoelectric vibrating reed 10, comprising a voltage controlled oscillator 14, a phase detector 11, and a loop filter 12. Duncan further teaches that it is known in the art to provide a phase-locked loop in which the output of the phase detector is filtered. See column 2, line 64 to column 3, line 5.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-7, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Duncan.

The only difference between the claimed invention and the method and apparatus for measuring mass from a change in oscillation frequency of a piezoelectric vibrating reed in Fig. 1 of Duncan consists in the elimination of the integrator 13. Duncan teaches providing the integrator 13 in order to produce a frequency control signal V_f that is much smoother than that of a phase-locked loop. See column 3, lines 58-59. It would have been obvious to one of ordinary skill in the art to eliminate the integrator 13 where the advantage of producing a smoother frequency control signal V_f is not critical. The omission of an element and its function in a combination, where the remaining elements perform the same functions as before, involves only routine skill in the art. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975); *In re Karlson*, 311 F.2d 581, 136 USPQ 184 (CCPA 1963).

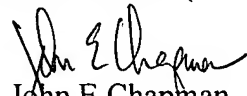
10. Claims 1-7, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Roukes et al. in view of Duncan.

Roukes et al. discloses a method and apparatus for measuring mass from a change in oscillation frequency of a vibrating beam 10, comprising a voltage controlled oscillator 22, a phase detector 28, and a loop filter 34. See column 3, lines 66 to column 4 line 9. Roukes et al. further teaches that the output of the filter 34 tracks the frequency of the resonator 11. See col. 4, lines 20-24. Accordingly, the only difference between the claimed invention and the prior art consists in using a piezoelectric vibrating beam. It is well known in the art to use a piezoelectric element to vibrate a spring element, as taught by piezoelectric crystal transducer 17 of Duncan, and merely to use a piezoelectric element to vibrate the beam 10 of Roukes et al. would have been obvious to one of ordinary skill in the art.

Art Unit: 2856

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John E. Chapman whose telephone number is (571) 272-2191. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John E Chapman
Primary Examiner
Art Unit 2856